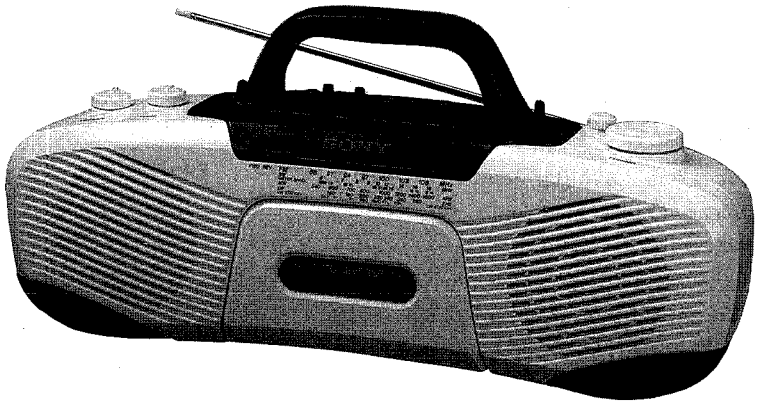
CFS-903L

SERVICE MANUAL

AEP Model
UK Model



SPECIFICATIONS

Model Name Using Similar Mechanism	CFS-W401L
Tape Transport Mechanism Type	MF-903-78D

Tuner frequency range	FM: 87.6–107MHz MW: 531–1,602kHz LW: 153–281kHz SW: 5.95–18MHz
IF	10.7MHz (FM), 455kHz (MW)
Frequency response	80Hz–10,000Hz
Speakers	10cm (4 in.) dia.. full range x2
Outputs	Headphones jack (stereo minijack) for 8–300ohm impedance headphones
Maximum power output	4.4W (2.2W + 2.2W)
Power requirements	9V DC, six R14 (size C) batteries DC IN 9V jack accepts: AC power adaptor (supplied) Power requirements (supplied AC power adaptor) UK model: 240V AC, 50Hz AEP model: 220V AC, 50Hz DCC-120 car battery cord (optional) for use with 12V car battery
Battery life	Batteries — FM recording Sony SUM-2 (NS) — Approx. 7.5 hours Sony AM2 alkaline — Approx. 27 hours
Dimensions	Approx. 440x202x128mm (w/h/d) (17 3/8x8x5 1/8 inches) incl. projecting parts and controls
Weight	Approx. 2.65kg (5 lb 13oz) incl. batteries
Accessory supplied	AC power adaptor (1)

Note:
This appliance conforms with EEC Directives 76/889 and 82/499 regarding interference suppression.

Design and specifications subject to change without notice.

DO NOT IMMERSE IN WATER

- Before opening or shutting the cassette holder or battery compartment lid, be sure to wipe off water, dust or sand on the outside of the unit.
- Water in the headphones jack may cause rusting. Cover the jack with the attached rubber cap when the headphones are not used.
- If the unit is splashed with salt water wipe clean with a damp cloth, then dry with a soft dry cloth. Do NOT wash under running water; do NOT use soap or detergent: do NOT dry with an electric hair dryer.
- The supplied AC power adaptor is not water resistant. To prevent shock hazard, avoid using the set near water during AC operation.

MICROFILM

RADIO CASSETTE-CORDER

SONY®

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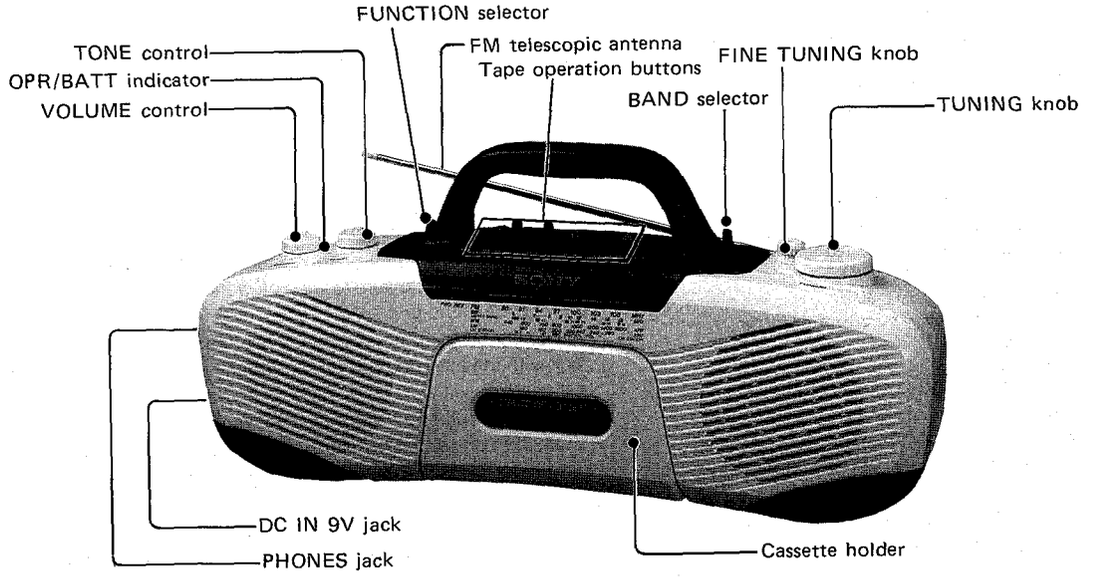
SECTION 1
GENERAL

[PARTS IDENTIFICATION]



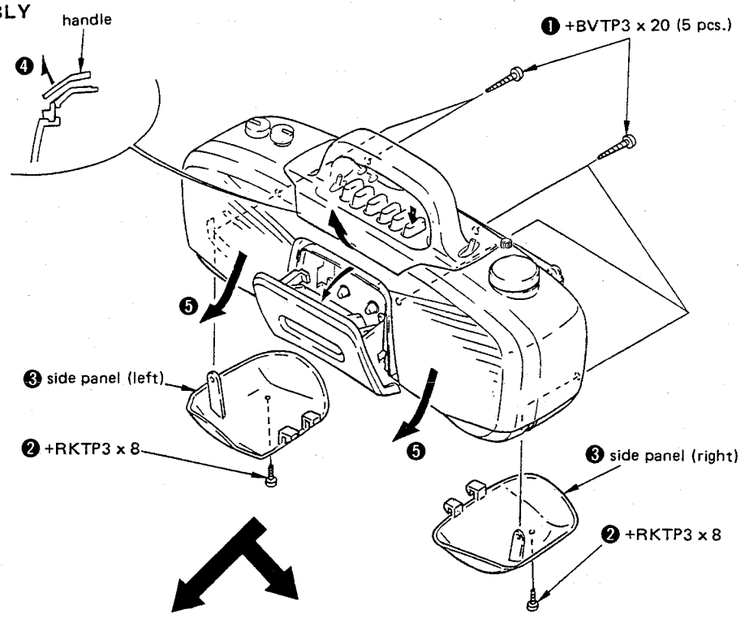
SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

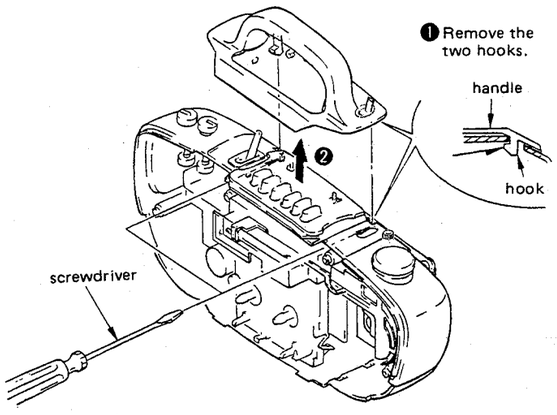
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

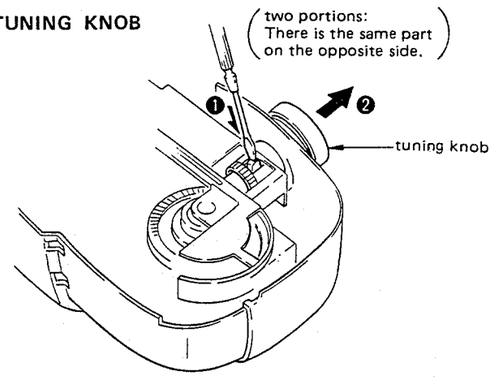
FRONT CABINET ASSEMBLY



HANDLE ASSEMBLY



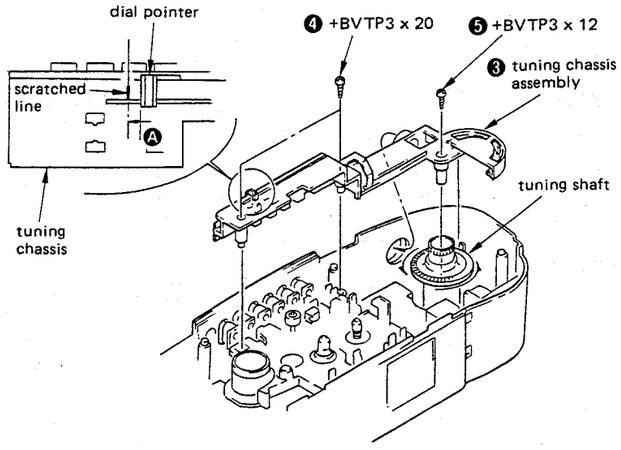
TUNING KNOB



DIAL POINTER SETTING

❶ Turn the tuning shaft fully counterclockwise.

❷ Set the left side of the dial pointer to the scratched line on the tuning chassis. (Arrow Ⓐ)



SECTION 3
MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:
   record/playback head — pinch roller
   erase head — rubber belts
   capstan — idlers
2. Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.
6. Power supply voltage: 9V dc.

Torque Measurement

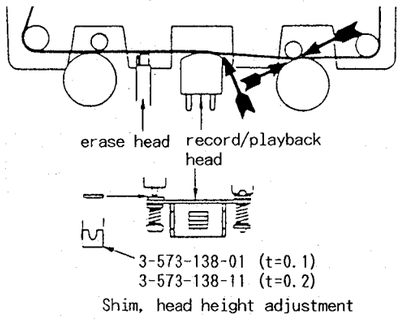
Mode	Torque meter	Meter reading
FWD	CQ-102C	30 – 75 g·cm (0.42 – 1.04 oz·inch)
FWD back tension		2 – 6 g·cm (0.03 – 0.08 oz·inch)
REV	CQ-102RB	30 – 75 g·cm (0.42 – 1.04 oz·inch)
REV back tension		2 – 6 g·cm (0.03 – 0.08 oz·inch)
FF, REW	CQ-201B	60 – 130 g·cm (0.83 – 1.81 oz·inch)

Tape Tension Measurement

Mode	Tension meter	Meter reading
FWD	CQ-403A	more than 90 g (more than 3.18 oz)
REV	CQ-403R	

Head Height Adjustment

1. Install a mirror cassette. (CQ-009C: Part No. 8-909-708-01)
2. In record mode and viewing from the front, adjust the head height to eliminate tape curl and tape twist at portions of arrow.
3. Perform this adjustment in both FWD and REV modes.



SECTION 4
ELECTRICAL ADJUSTMENTS

3-1. TAPE RECODER SECTION

• Test Tape

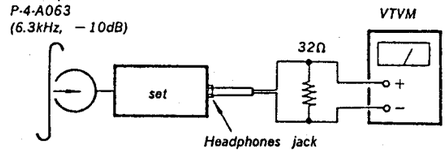
Type	Signal	Used for
WS-48A	3kHz, 0dB	tape speed adjustment
P-4-A063	6.3kHz, −10dB	head azimuth adjustment

REC/PB Head Azimuth Adjustment

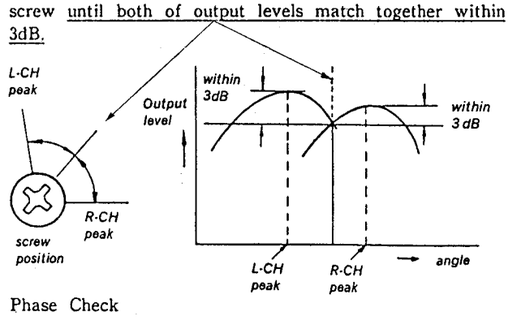
Perform adjustment in both FWD and REV modes.
After adjustment, confirm the specification in FWD mode.

Procedure:

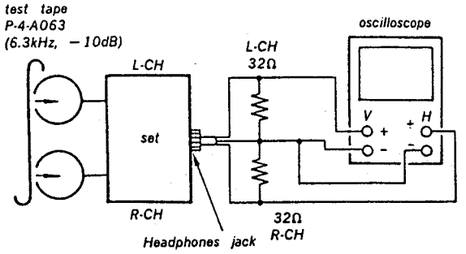
1. Mode: playback

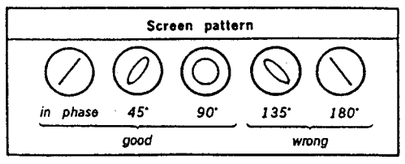


2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 3dB.

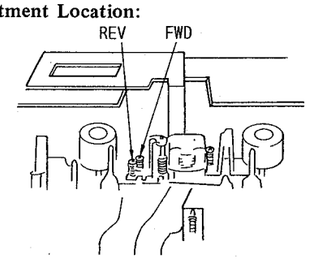


3. Phase Check
   Mode: playback





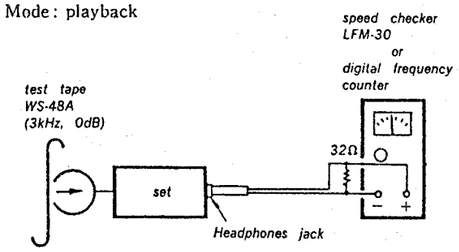
Adjustment Location:



Tape Speed Adjustment

Procedure :

Mode : playback

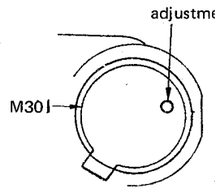


Adjustment Value :

Speed checker	Digital frequency counter
±3%	2,910 to 3,090 Hz

Frequency difference between the beginning and the end of the tape should be within 1.5% (45Hz).

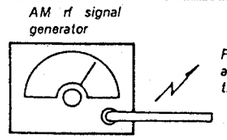
Adjustment Location :

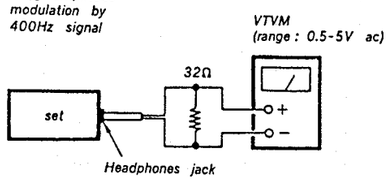


3-2. RADIO SECTION

AM SECTION

Setting:
FUNCTION switch: AM (MW/LW/SW)
FINE TUING: mechanical mid





• Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

AM IF ADJUSTMENT
Adjust for a maximum reading on VTVM.
T1
455kHz

MW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L5	CT4
520kHz	1,680kHz

MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L3	CT3
620kHz	1,400kHz

LW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L7	CT7
145kHz	300kHz

LW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L10	CT10
160kHz	260kHz

*

SW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L6	CT6
5.8MHz	18.4MHz

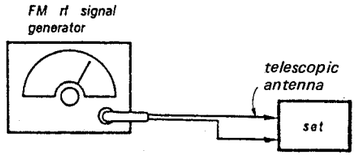
*

SW TRACKING ADJUSTMENT
Adjust for a maximum reading on VTVM.
L8
7MHz

*: Extend telescopic antenna fully.

FM SECTION

Setting:
FUNCTION switch: FM

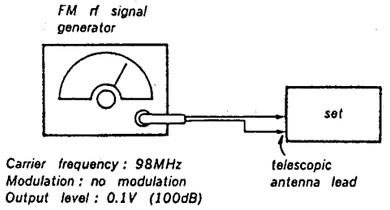


FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L2	CT2
87.0MHz	108.3MHz

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L1	CT1
87.0MHz	108.3MHz

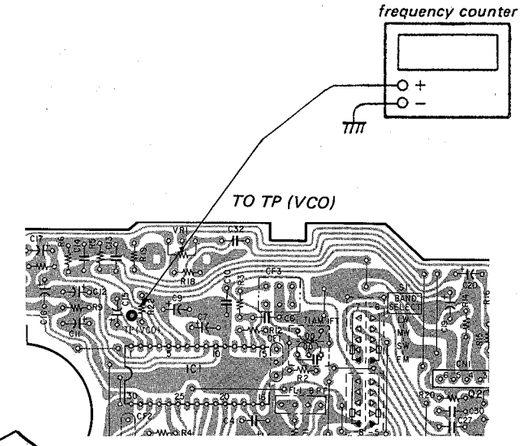
VCO Adjustment

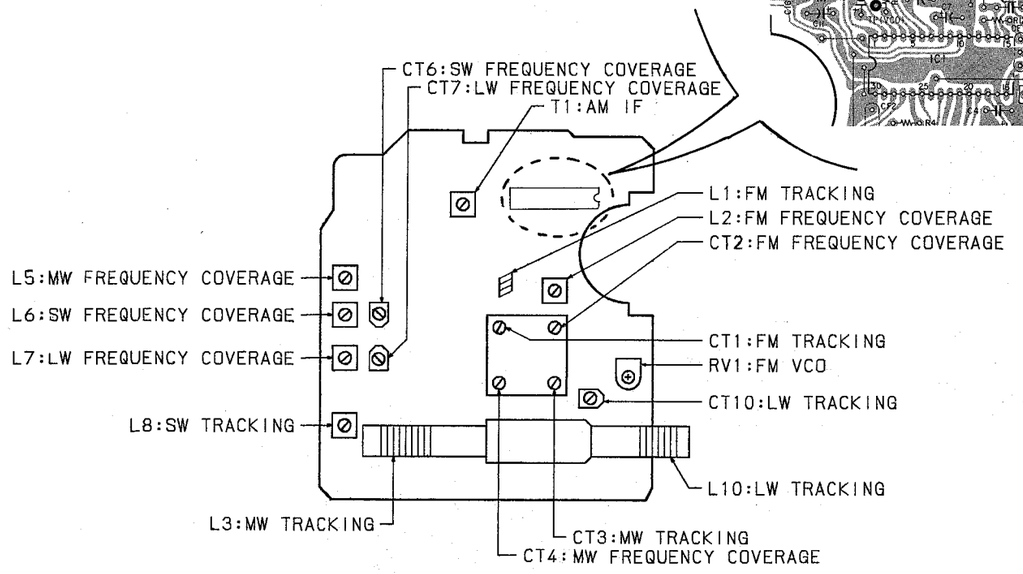
Procedure :



1. Connect frequency counter to TP (VCO).
2. Tune the set to 98MHz.
3. Adjust RV1 for 76kHz±500Hz reading on the frequency counter.

Adjustment Location: tuner board (component side)





SECTION 5
DIAGRAMS

Note on Schematic Diagram:

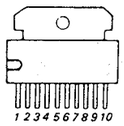
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- Total current is measured with no cassette installed.
- Power voltage is dc 9 V and fed with regulated dc power supply from external power voltage jack.
- Voltages are dc with respect to ground under no-signal (detuned) conditions.
  RADIO SECTION
  no mark: FM
  ( ): AM
  AUDIO SECTION
  no mark: PB
  ( ): REC
  (( )): AMS
- Voltages are taken with a VOM (10 MΩ/V).
  Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM ⇒ : PB
  ⇒ : REC

5-1. SEMICONDUCTOR LEAD LAYOUTS

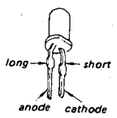
BA338

2SA952

BA5410

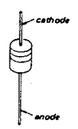


TLR124



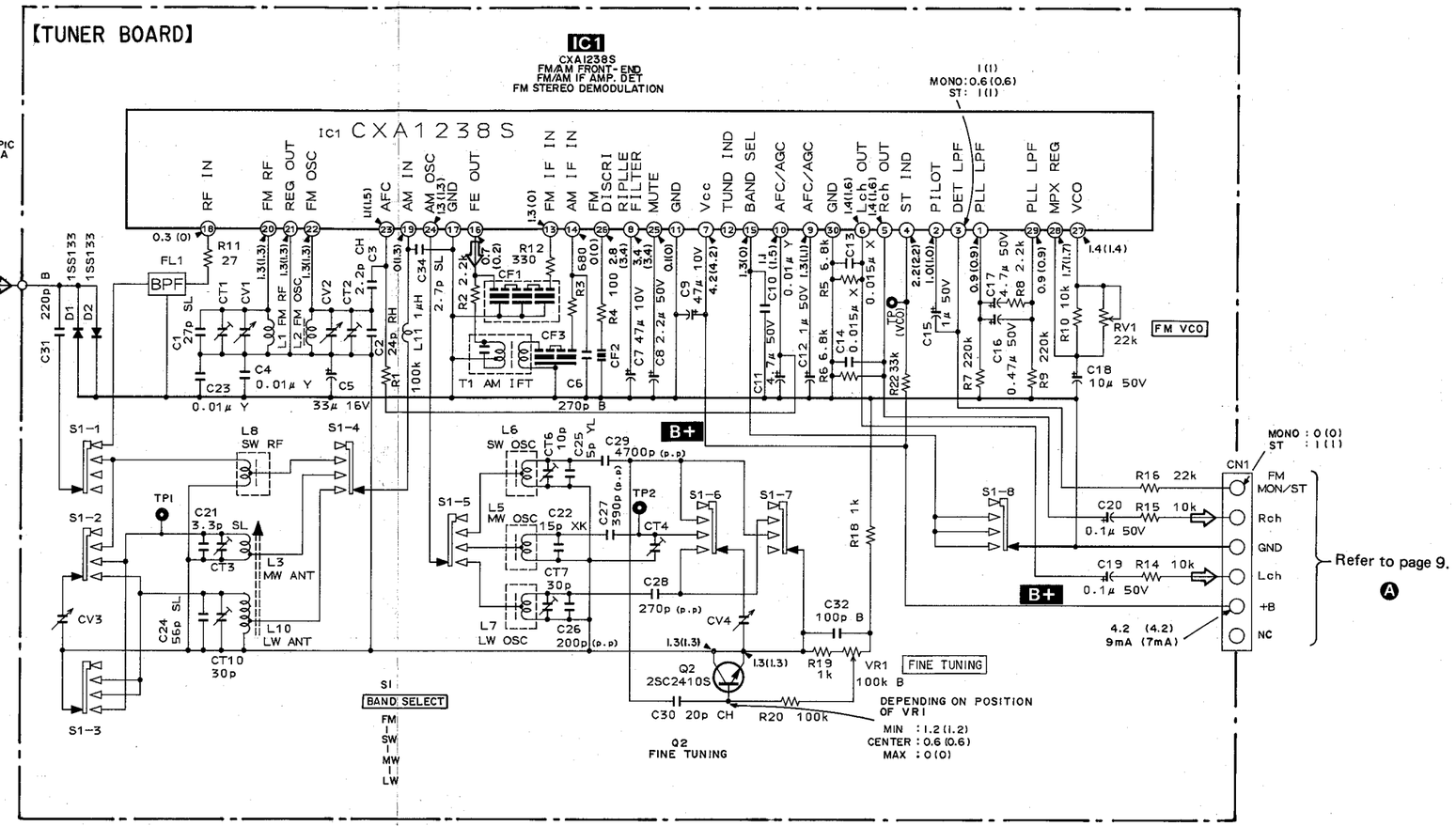
DTA114ES
DTC114ES
DTC143TS

1SS119



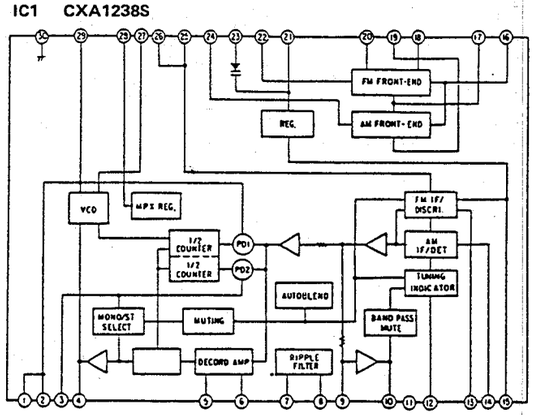
2SA733-K
2SC1815GR
2SC2001
2SD1387

5-2. SCHEMATIC DIAGRAM (Tuner Section)



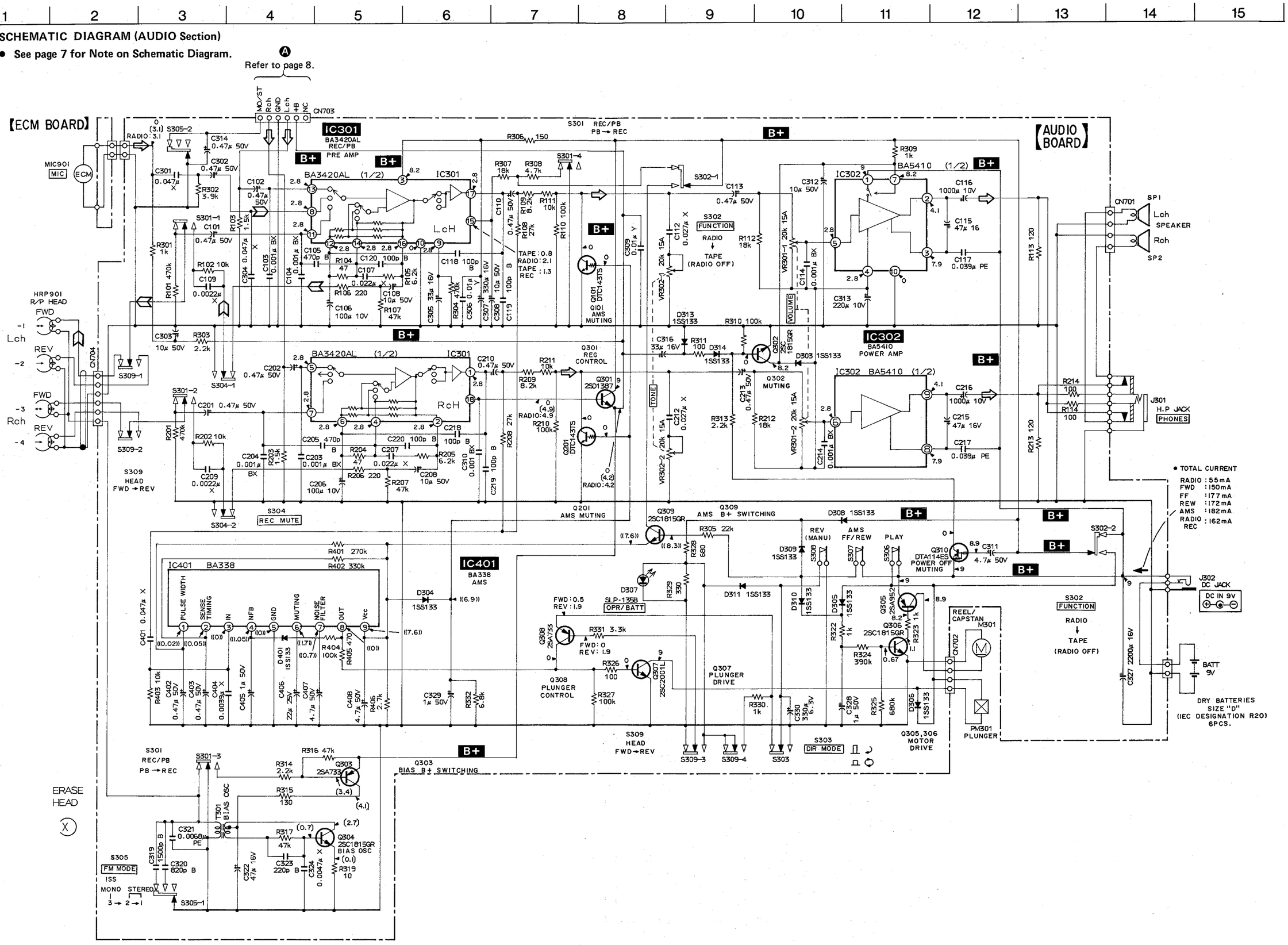
● **IC Block Diagram**

IC1 CXA1238S

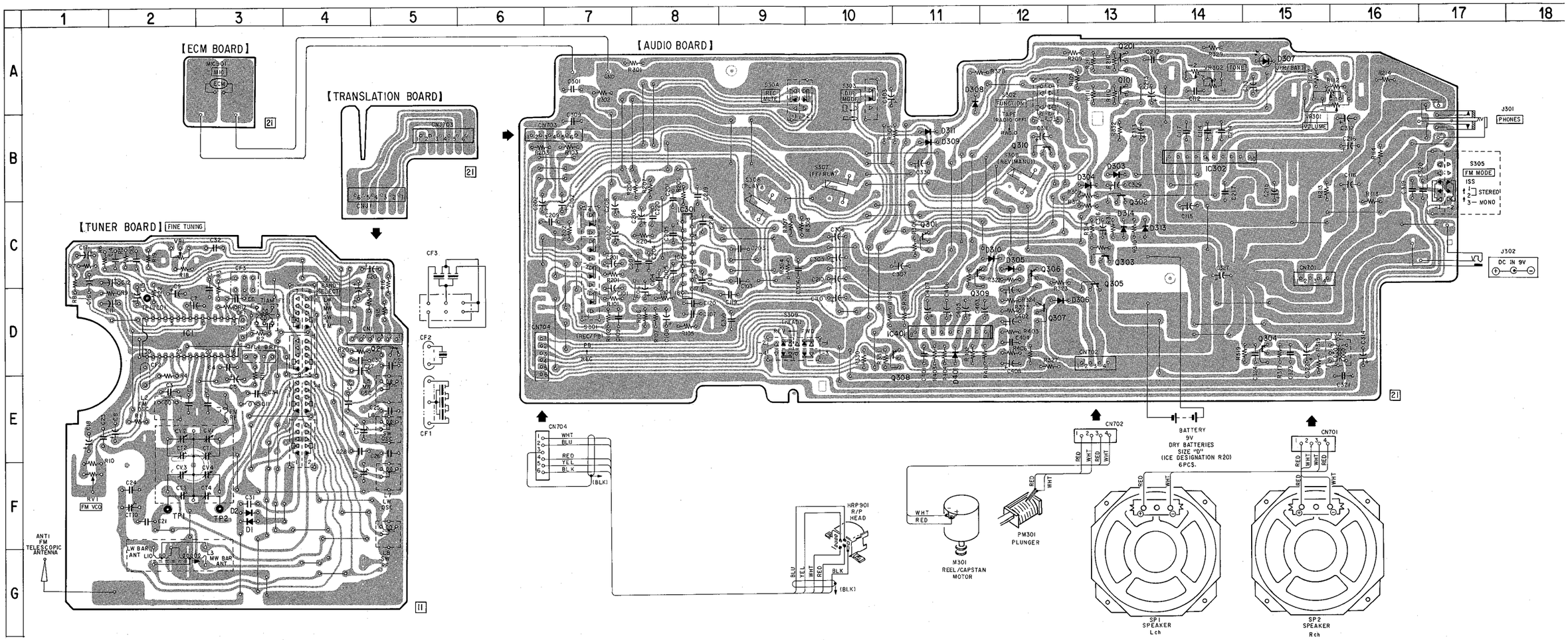


5-3. SCHEMATIC DIAGRAM (AUDIO Section)

- See page 7 for Note on Schematic Diagram.



5-4. PRINTED WIRING BOARDS



- **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D1	F-3	D313	C-13	Q301	C-11
D2	F-3	D314	C-13	Q302	C-13
D302	B-12	D401	E-11	Q303	C-13
D303	B-13			Q304	D-15
D304	B-13	IC1	D-2	Q305	D-13
D305	C-12	IC301	C-8	Q306	D-13
D306	D-13	IC302	B-14	Q307	D-12
D307	A-15	IC401	D-11	Q308	E-10
D308	A-11			Q309	D-11
D309	B-11	Q1	D-3	Q310	B-12
D310	C-12	Q101	A-13		
D311	B-11	Q201	A-13		

Note:

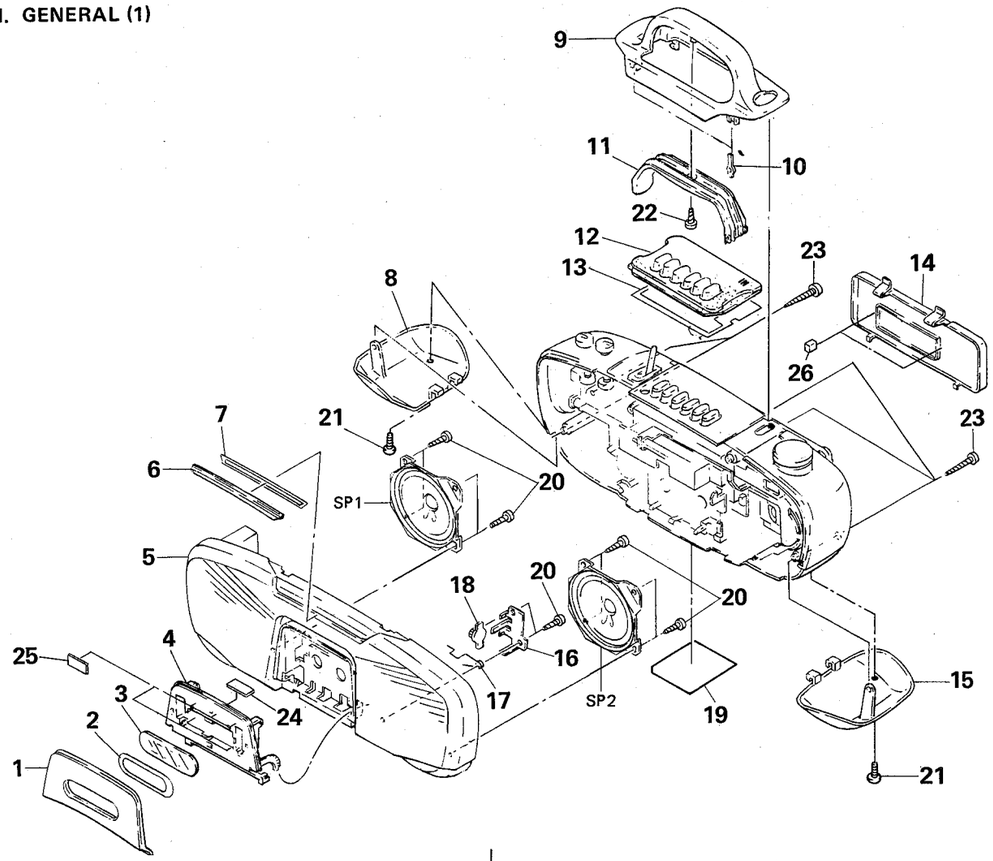
- ○—— : parts extracted from the component side.

SECTION 6
EXPLODED VIEWS

NOTE:

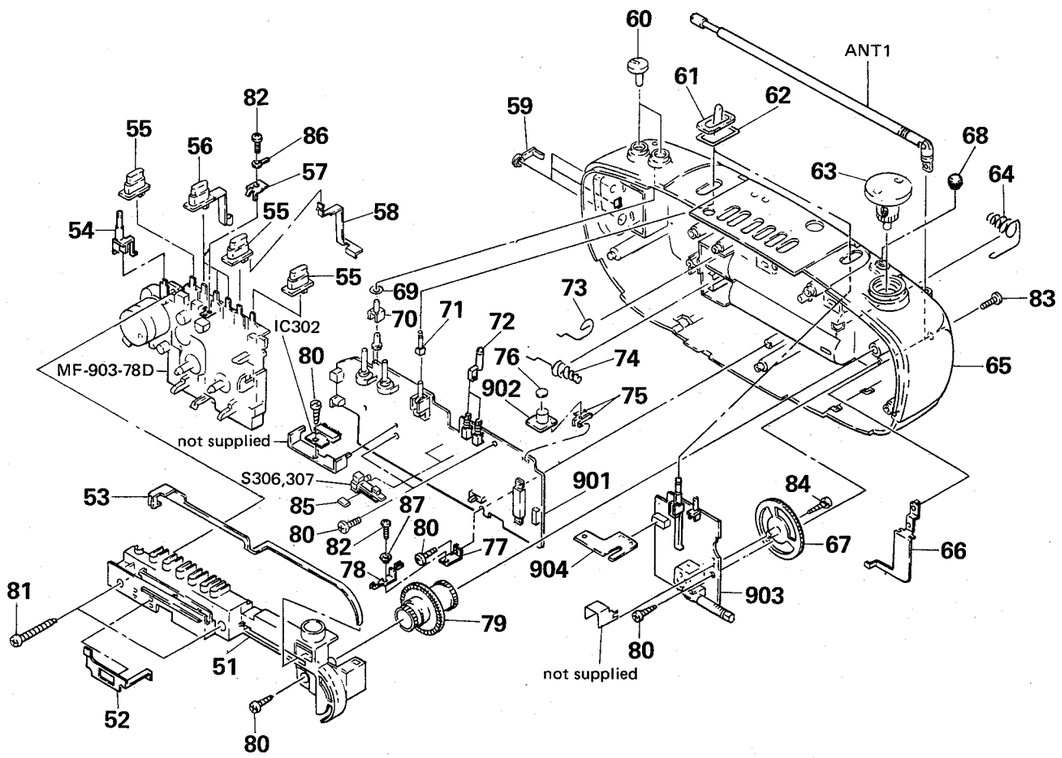
- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts
  Example:
  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ ↑
  Cabinet's Color Parts' Color

1. GENERAL (1)



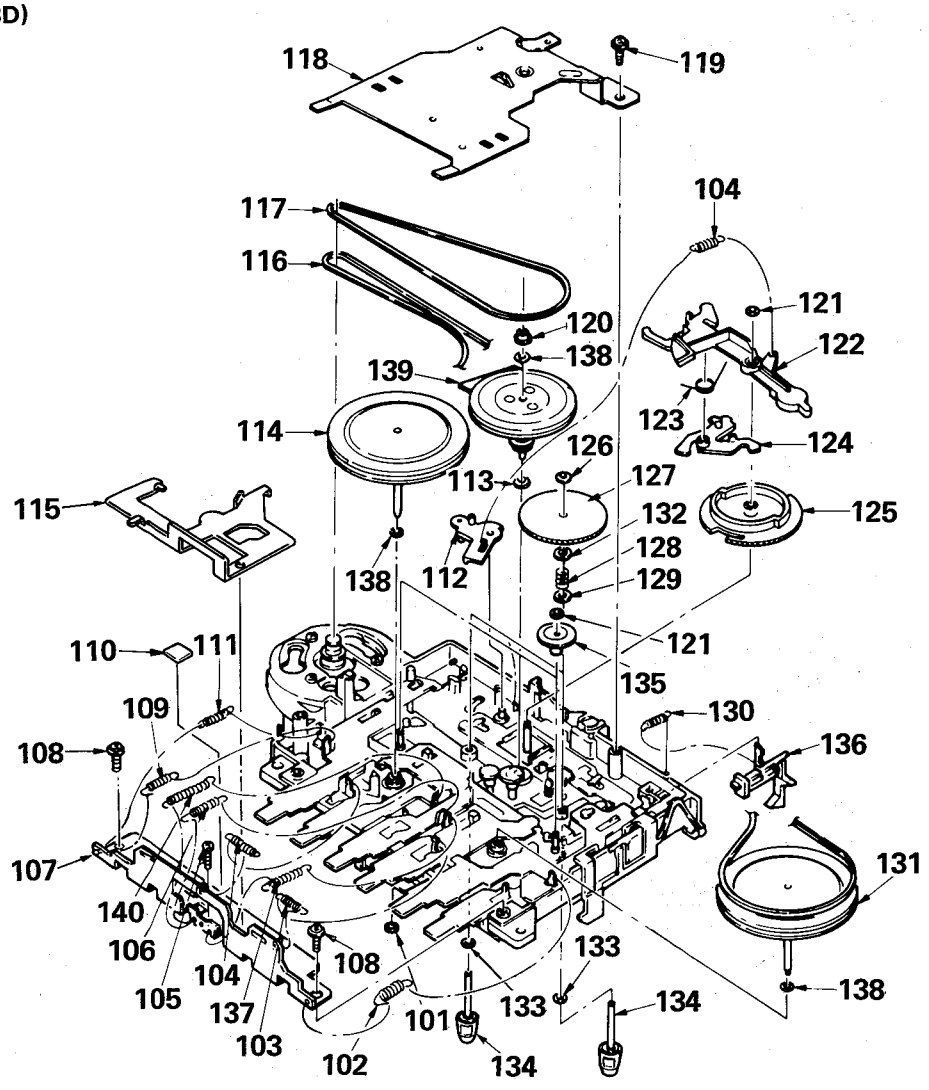
No.	Part No.	Description	Remarks
1	3-352-229-01	(YEL)...LID, CASSETTE (YEL)	
	3-352-229-11	(WHT)...LID, CASSETTE (WHT)	
2	3-352-239-01	SHEET (B), ADHESIVE	
3	3-352-203-21	WINDOW, CASSETTE	
4	3-352-227-01	HOLDER, CASSETTE	
5	3-352-268-21	(YEL)...CABINET (FRONT)(YEL)	
	3-352-268-31	(WHT)...CABINET (FRONT)(WHT)	
6	3-352-202-01	WINDOW, DIAL	
7	3-352-243-01	SHEET (A), ADHESIVE	
8	3-352-226-01	PANEL (LEFT), SIDE (GRY)	
9	3-352-238-11	HANDLE (GRY)	
10	*3-352-267-01	BRACKET (C)	
11	3-352-223-01	PLATE, HANDLE (GRY)	
12	3-352-218-01	PACKING (MD BUTTON)	
13	3-352-244-01	SHEET (C), ADHESIVE	
14	3-352-228-01	(YEL)...LID, BATTERY CASE (YEL)	
	3-352-228-11	(WHT)...LID, BATTERY CASE (WHT)	
15	3-352-225-01	PANEL (RIGHT), SIDE (GRY)	
16	*3-352-208-01	BRACKET (A)	
17	3-352-209-01	SPRING (CASSETTE)	
18	3-319-224-31	DAMPER, SMALL	
19	*3-352-250-01	(AEP)...LABEL, MODEL NUMBER	
	*3-352-251-01	(UK)....LABEL, MODEL NUMBER	
20	7-685-648-79	SCREW +BVTP 3X12 TYPE2 IT-3	
21	7-685-246-19	SCREW +RKTP 3X8 TYPE2 N-S	
22	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
23	7-685-651-79	SCREW +BVTP 3X20 TYPE2 IT-3	
24	*3-880-474-01	CUSHION, 15X5X0.3	
25	3-831-441-XX	CUSHION, STOPPER	
26	*9-911-843-XX	CUSHION	
SP1	1-503-823-11	SPEAKER	
SP2	1-503-823-11	SPEAKER	

2. GENERAL (2)



No.	Part No.	Description	Remarks
51	*3-352-230-01	CHASSIS (TUN)	
52	*3-352-231-01	PLATE, INDICATION	
53	*3-352-224-01	POINTER	
54	*3-352-235-01	BUTTON (DIR)	
55	*3-352-219-01	BUTTON (B)	
56	*3-352-220-01	BUTTON (A)	
57	*3-352-271-01	BRACKET (D)	
58	*3-352-207-01	LEVER (REC)	
59	3-352-215-01	PACKING (JACK)	
60	3-352-204-01	(YEL)...KNOB (VOL)(YEL)	
	3-352-204-11	(WHT)...KNOB (VOL)(WHT)	
61	3-352-217-01	PACKING (FUNC)	
62	3-352-240-01	SHEET (D), ADHESIVE	
63	3-352-221-01	(YEL)...KNOB (TUNING)(YEL)	
	3-352-221-11	(WHT)...KNOB (TUNING)(WHT)	
64	3-352-212-01	TERMINAL (+ -), BATTERY	
65	3-352-236-81	(YEL)...CABINET (REAR)(YEL)	
	3-352-236-91	(WHT)...CABINET (REAR)(WHT)	
66	*3-352-210-01	TERMINAL BOARD, ANTENNA	
67	*3-352-206-01	DRUM, DIAL	
68	3-352-234-01	(YEL)...KNOB (FINE)(YEL)	
	3-352-234-11	(WHT)...KNOB (FINE)(WHT)	
69	3-352-245-01	SHEET (E), ADHESIVE	
70	3-352-205-01	WINDOW (LED)	
71	*3-352-216-01	KNOB (FUNC)	
72	*3-352-233-01	KNOB (MODE)	
73	3-352-214-01	TERMINAL (+), BATTERY	
74	3-352-213-01	TERMINAL (-), BATTERY	
75	3-352-211-01	TERMINAL BOARD (ECM)	
76	3-326-355-01	SHEET, MIC	
77	*3-352-201-01	BRACKET (B)	
78	3-352-232-01	SPRING (REVERSE)	
79	*3-352-222-01	SHAFT, TUNING	
80	7-685-648-79	SCREW +BVTP 3X12 TYPE2 IT-3	
81	7-685-651-79	SCREW +BVTP 3X20 TYPE2 IT-3	
82	7-621-772-10	SCREW +B 2X4	
83	7-682-549-04	SCREW +B 3X10	
84	7-621-770-87	SCREW +P 2.6X5	
85	9-911-844-XX	SPACER, LEAF	
86	7-623-505-01	LUG, 2	
87	3-352-266-01	SPACER	
901	*A-3270-634-A	PC BOARD ASSY, AUDIO	
902	*1-630-149-21	PC BOARD, ECM	
903	*A-3270-636-A	PC BOARD ASSY, TUNER	
904	*1-631-151-21	PC BOARD, TRANSLATION	
ANT1	1-501-436-11	ANTENNA, TELESCOPIC	

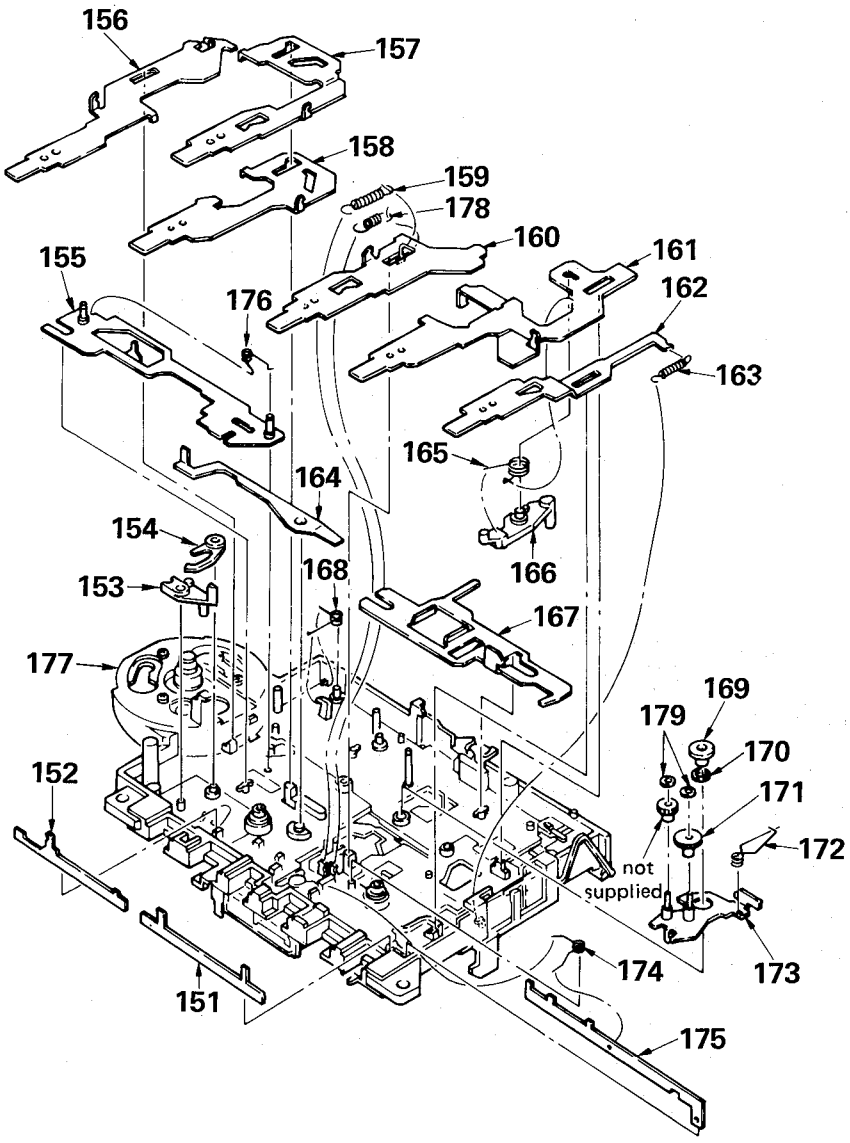
3. MECHANISM (1)
(MF-903-78D)



No.	Part No.	Description	Remarks
101	3-325-698-01	RING, RETAINING	
102	3-322-691-01	SPRING, TENSION (REC)	
103	3-330-605-01	SPRING, TENSION	
104	3-322-527-01	SPRING, TENSION	
105	7-685-105-19	TPG +P 2X8, TYPE 2, NON-SLIT	
106	3-322-679-01	SPRING, TENSION (REW)	
107	*3-322-518-01	RETAINER, LEVER	
108	7-687-233-11	SCREW (+ PTPWH) (2.6X6)	
109	3-322-679-01	SPRING, TENSION (PAUSE)	
110	3-831-441-11	CUSHION (T)	
111	3-530-260-00	SPRING, TENSION	
112	3-330-827-01	LEVER (B), GEAR LOCK	
113	3-701-437-01	WASHER (t=0.13)	
114	*X-3341-303-1	FLYWHEEL (FW) ASSY	
115	*3-330-606-01	LEVER, SELECTION, S.OFF	
116	3-322-533-01	BELT	
117	3-657-035-XX	BELT, COUNTER	
118	*3-322-519-01	RETAINER, THRUST	
119	7-685-134-19	SCREW (+ PTPWH) (2.6X8)	
120	3-322-566-01	BEARING, PULLEY	

No.	Part No.	Description	Remarks
121	3-307-948-01	WASHER, NYLON	
122	3-330-833-01	LEVER (C), OA	
123	3-322-534-01	SPRING	
124	3-330-826-01	LEVER (D), OA	
125	3-322-553-01	GEAR, CAM	
126	3-578-223-21	WASHER, NYLON	
127	3-322-508-01	GEAR, REEL	
128	3-321-541-01	SPRING, COMPRESSION	
129	3-322-659-01	WASHER (A)	
130	3-313-384-01	SPRING, TENSION	
131	*X-3341-302-1	FLYWHEEL (RV) ASSY	
132	3-322-660-01	WASHER (B)	
133	3-545-715-00	WASHER	
134	X-3322-502-1	CLAW ASSY, REEL	
135	3-322-556-01	GEAR, FR	
136	3-322-511-01	CLAW, ERASING PROTECTION	
137	3-322-526-01	SPRING, TENSION(POWER TENSION)	
138	3-701-437-11	WASHER (t=0.25)	
139	X-3322-540-1	DETECTION BLOCK ASSY	
140	3-328-103-01	SPRING, TENSION (FF)	

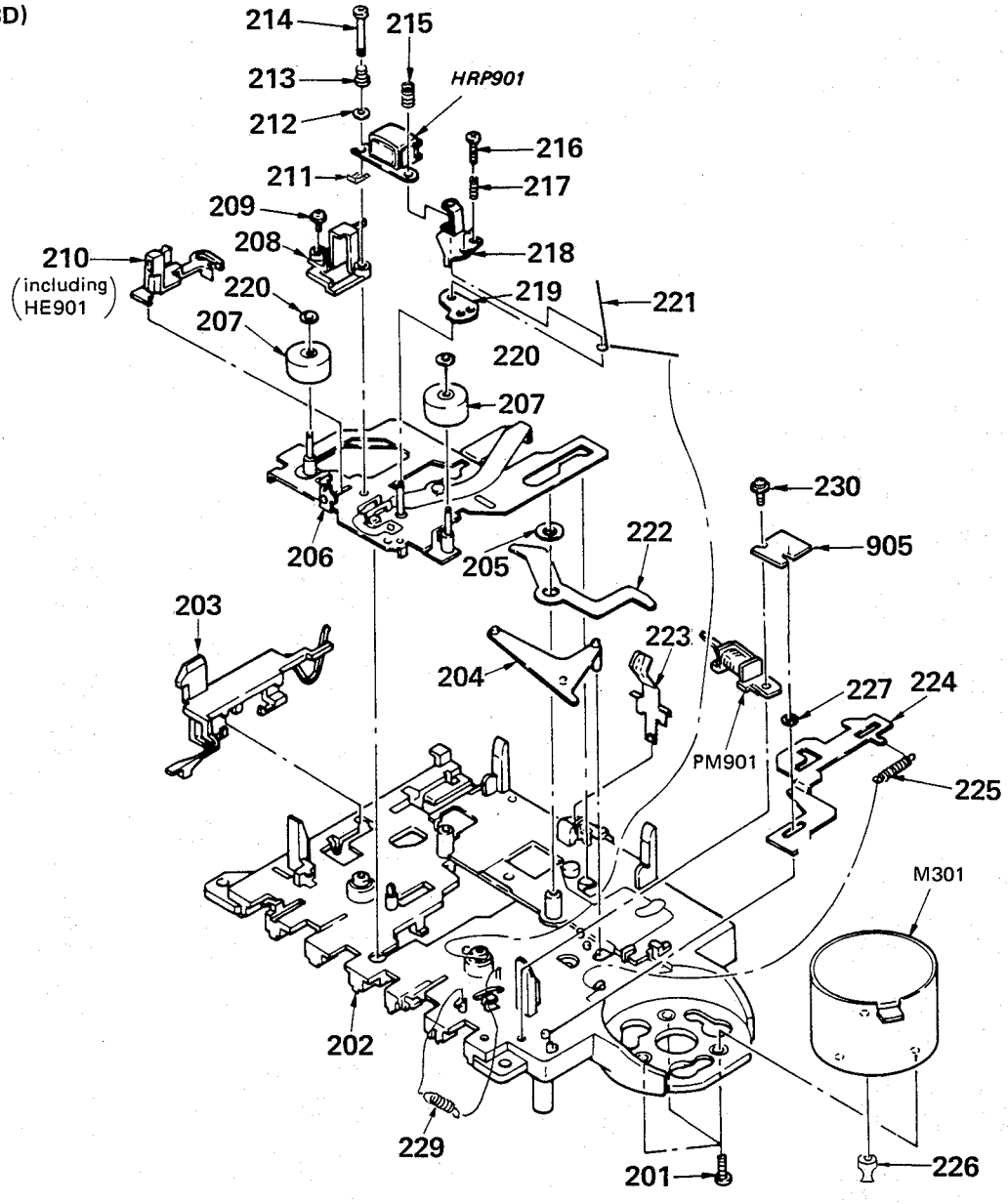
4. MECHANISM (2)
(MF-903-78D)



No.	Part No.	Description	Remarks
151	*3-330-604-01	PLATE (C), LOCK	
152	*3-322-587-01	PLATE (B), LOCK	
153	X-3330-610-1	LEVER (R) ASSY, S.OFF	
154	3-322-555-01	LEVER (E), S.OFF	
155	*X-3322-505-1	LEVER ASSY, FR	
156	*3-330-829-11	LEVER (C), PAUSE BUTTON	
157	3-322-515-11	LEVER, REW BUTTON	
158	*3-322-585-11	LEVER, FF BUTTON	
159	3-322-693-01	SPRING, TENSION	
160	*3-322-584-11	LEVER, PLAY BUTTON	
161	*3-322-591-11	LEVER, REC BUTTON	
162	*3-322-583-11	LEVER, STOP BUTTON	
163	3-328-102-01	SPRING, TENSION (POWER TENSION)	
164	*3-322-517-01	LEVER, AMS	
165	3-322-575-01	SPRING	

No.	Part No.	Description	Remarks
166	3-322-554-01	ARM, REC LOCK	
167	*3-330-602-01	LEVER (R), DIRECTION	
168	3-322-577-01	SPRING	
169	3-322-513-01	COLLAR	
170	3-322-689-01	RING	
171	3-343-146-01	GEAR (A), FWD	
172	3-322-576-01	SPRING	
173	*X-3339-320-1	ARM ASSY (M), FWD GEAR	
174	3-322-579-01	SPRING	
175	*3-322-589-01	LEVER, SWITCH	
176	3-322-578-01	SPRING	
177	A-3102-061-A	CHASSIS ASSY	
178	3-322-520-01	SPRING, TENSION	
179	3-570-615-00	POLY-WASHER (DIA.1.2)	

5. MECHANISM (3)
(MF-903-78D)



No.	Part No.	Description	Remarks
201	7-621-770-87	SCREW +P 2.6X5	
202	A-3102-109-A	CHASSIS ASSY, MECHANICAL	
203	3-322-512-01	LEVER, EJECT	
204	3-322-514-01	LINK (A)	
205	3-701-443-11	WASHER	
206	X-3337-810-1	CHASSIS (R) ASSY, HEAD	
207	3-703-597-41	PINCH ROLLER, STANDARD	
208	*3-339-701-01	GUIDE, TAPE	
209	7-621-772-20	SCREW +B 2X5	
210	A-3114-042-A	ARM ASSY, EBF	
211	3-578-138-01	SHIM (t=0.1)	
	3-578-138-11	SHIM (t=0.2)	
212	7-688-001-01	W 2, SMALL	
213	3-318-106-01	SPRING (H), COMPRESSION	
214	3-322-567-11	SCREW, PAN, STEP	
215	3-341-163-01	SPRING, COMPRESSION	

No.	Part No.	Description	Remarks
216	7-627-851-27	SCREW, PRECISION +P 1.4X5	
217	3-322-531-01	SPRING, COMPRESSION	
218	*3-341-161-01	LEVER, AZIMUTH	
219	3-326-622-01	RETAINER, AZIMUTH	
220	3-307-948-01	WASHER, NYLON	
221	3-341-164-01	SPRING	
222	*3-322-590-02	LEVER, DIRECTION RELEASE	
223	3-322-595-01	SPRING	
224	*3-322-594-11	LEVER, MANUAL BUTTON	
225	3-328-101-01	SPRING, TENSION(POWER TENSION)	
226	X-3322-524-1	PULLEY ASSY	
227	3-701-437-01	WASHER (t=0.13)	
229	3-330-633-01	SPRING, TENSION	
230	7-685-105-19	SCREW (2X8), + PTPWH	
905	*1-602-735-00	PC BOARD, PLUNGER SOLENOID	
HRP901	1-543-389-11	HEAD, MAGNETIC (REC/PB)	
M301	1-541-625-11	MOTOR, DC	

SECTION 7
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA..., UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description			
901	*A-3270-634-A	PC BOARD ASSY, AUDIO			
902	*1-630-149-21	PC BOARD, ECM			
903	*A-3270-636-A	PC BOARD ASSY, TUNER			
904	*1-631-151-21	PC BOARD, TRANSLATION			
905	*1-602-735-00	PC BOARD, PLUNGER SOLENOID			
ANT1	1-501-436-11	ANTENNA, TELESCOPIC			
C1	1-162-209-31	CERAMIC	27PF	5%	50V
C2	1-102-960-00	CERAMIC	24PF	5%	50V
C3	1-162-191-31	CERAMIC	2.2PF	10%	50V
C4	1-161-379-00	CERAMIC	0.01MF	30%	16V
C5	1-124-963-11	ELECT	33MF	20%	16V
C6	1-162-287-31	CERAMIC	270PF	10%	50V
C7	1-124-446-11	ELECT	47MF	20%	10V
C8	1-124-925-11	ELECT	2.2MF	20%	50V
C9	1-124-446-11	ELECT	47MF	20%	10V
C10	1-161-379-00	CERAMIC	0.01MF	30%	16V
C11	1-124-927-11	ELECT	4.7MF	20%	50V
C12	1-124-499-11	ELECT	1MF	20%	50V
C13	1-161-053-00	CERAMIC	0.015MF	10%	16V
C14	1-161-053-00	CERAMIC	0.015MF	10%	16V
C15	1-124-499-11	ELECT	1MF	20%	50V
C16	1-124-902-00	ELECT	0.47MF	20%	50V
C17	1-124-927-11	ELECT	4.7MF	20%	50V
C18	1-123-875-11	ELECT	10MF	20%	50V
C19	1-124-463-00	ELECT	0.1MF	20%	50V
C20	1-124-463-00	ELECT	0.1MF	20%	50V
C21	1-162-193-31	CERAMIC	3.3PF	10%	50V
C22	1-102-291-11	CERAMIC	15PF	5%	50V
C23	1-161-379-00	CERAMIC	0.01MF	30%	16V
C24	1-162-217-31	CERAMIC	56PF	5%	50V
C25	1-102-942-00	CERAMIC	5PF	0.5PF	50V
C26	1-136-010-00	FILM	200PF	5%	50V
C27	1-130-013-00	FILM	390PF	5%	50V
C28	1-130-011-00	FILM	270PF	5%	50V
C29	1-136-287-11	FILM	0.0047MF	5%	50V
C30	1-162-206-31	CERAMIC	20PF	5%	50V
C31	1-162-286-31	CERAMIC	220PF	10%	50V
C32	1-162-282-31	CERAMIC	100PF	10%	50V
C34	1-162-192-31	CERAMIC	2.7PF	10%	50V
C101	1-124-902-00	ELECT	0.47MF	20%	50V
C102	1-124-902-00	ELECT	0.47MF	20%	50V
C105	1-162-290-31	CERAMIC	470PF	10%	50V
C106	1-124-443-00	ELECT	100MF	20%	10V
C107	1-162-843-11	CERAMIC	0.022MF	10%	16V
C108	1-123-875-11	ELECT	10MF	20%	50V

Ref.No.	Part No.	Description			
C109	1-161-375-00	CERAMIC	0.0022MF	20%	16V
C110	1-124-902-00	ELECT	0.47MF	20%	50V
C112	1-162-844-11	CERAMIC	0.027MF	10%	16V
C113	1-124-902-00	ELECT	0.47MF	20%	50V
C115	1-124-477-11	ELECT	47MF	20%	16V
C116	1-124-473-11	ELECT	1000MF	20%	10V
C117	1-130-490-11	MYLAR	0.039MF	5%	50V
C118	1-162-282-31	CERAMIC	100PF	10%	50V
C119	1-162-282-31	CERAMIC	100PF	10%	50V
C120	1-162-282-31	CERAMIC	100PF	10%	50V
C201	1-124-902-00	ELECT	0.47MF	20%	50V
C202	1-124-902-00	ELECT	0.47MF	20%	50V
C205	1-162-290-31	CERAMIC	470PF	10%	50V
C206	1-124-443-00	ELECT	100MF	20%	10V
C207	1-162-843-11	CERAMIC	0.022MF	10%	16V
C208	1-123-875-11	ELECT	10MF	20%	50V
C209	1-161-375-00	CERAMIC	0.0022MF	20%	16V
C210	1-124-902-00	ELECT	0.47MF	20%	50V
C212	1-162-844-11	CERAMIC	0.027MF	10%	16V
C213	1-124-902-00	ELECT	0.47MF	20%	50V
C215	1-124-477-11	ELECT	47MF	20%	16V
C216	1-124-473-11	ELECT	1000MF	20%	10V
C217	1-130-490-11	MYLAR	0.039MF	5%	50V
C218	1-162-282-31	CERAMIC	100PF	10%	50V
C219	1-162-282-31	CERAMIC	100PF	10%	50V
C220	1-162-282-31	CERAMIC	100PF	10%	50V
C301	1-162-847-11	CERAMIC	0.047MF	10%	16V
C302	1-124-902-00	ELECT	0.47MF	20%	50V
C303	1-123-875-11	ELECT	10MF	20%	50V
C304	1-162-847-11	CERAMIC	0.047MF	10%	16V
C305	1-124-963-11	ELECT	33MF	20%	16V
C306	1-161-379-00	CERAMIC	0.01MF	30%	16V
C307	1-124-119-00	ELECT	330MF	20%	16V
C308	1-123-875-11	ELECT	10MF	20%	50V
C309	1-161-379-00	CERAMIC	0.01MF	30%	16V
C311	1-124-927-11	ELECT	4.7MF	20%	50V
C312	1-123-875-11	ELECT	10MF	20%	50V
C313	1-126-176-11	ELECT	220MF	20%	10V
C314	1-124-902-00	ELECT	0.47MF	20%	50V
C316	1-124-963-11	ELECT	33MF	20%	16V
C319	1-102-119-00	CERAMIC	0.0015MF	10%	50V
C320	1-102-117-00	CERAMIC	820PF	10%	50V
C321	1-130-481-00	MYLAR	0.0068MF	5%	50V
C322	1-124-477-11	ELECT	47MF	20%	16V
C323	1-162-286-31	CERAMIC	220PF	10%	50V

Ref.No.	Part No.	Description			
C324	1-162-835-11	CERAMIC	0.0047MF	10%	16V
C327	1-124-556-11	ELECT	2200MF	20%	16V
C328	1-124-499-11	ELECT	1MF	20%	50V
C329	1-124-499-11	ELECT	1MF	20%	50V
C330	1-124-442-00	ELECT	330MF	20%	6.3V
C401	1-162-847-11	CERAMIC	0.047MF	10%	16V
C402	1-124-902-00	ELECT	0.47MF	20%	50V
C403	1-124-902-00	ELECT	0.47MF	20%	50V
C404	1-161-046-00	CERAMIC	0.0039MF	10%	16V
C405	1-124-499-11	ELECT	1MF	20%	50V
C406	1-126-233-11	ELECT	22MF	20%	25V
C407	1-124-927-11	ELECT	4.7MF	20%	50V
C408	1-124-927-11	ELECT	4.7MF	20%	50V
CF1	1-567-166-00	FILTER, CERAMIC			
CF2	1-567-166-00	FILTER, CERAMIC			
CF3	1-567-670-11	FILTER, CERAMIC			
CN1	*1-508-695-00	CONNECTOR PIN 6P			
CN701	*1-564-778-11	PLUG, CONNECTOR (2.5MM) 4P			
CN702	*1-564-778-31	PLUG, CONNECTOR (2.5MM) 4P			
CN703	*1-508-695-00	CONNECTOR PIN 6P			
CN704	*1-506-988-11	PIN, CONNECTOR (PC BOARD) 6P			
CNJ1	*1-568-411-11	SOCKET, CONNECTOR 6P			
CNJ703	*1-568-411-11	SOCKET, CONNECTOR 6P			
CT1-4 CV1-4	1-151-637-11	CAP, VARIABLE			
CT6	1-141-401-11	CAP, ADJ			
CT7	1-141-266-11	CAP, TRIMMER			
CT10	1-141-266-11	CAP, TRIMMER			
D1	8-719-911-19	DIODE 1SS119			
D2	8-719-911-19	DIODE 1SS119			
D303	8-719-911-19	DIODE 1SS119			
D304	8-719-911-19	DIODE 1SS119			
D305	8-719-911-19	DIODE 1SS119			
D306	8-719-911-19	DIODE 1SS119			
D307	8-719-812-41	DIODE TLR124			
D308	8-719-911-19	DIODE 1SS119			
D309	8-719-911-19	DIODE 1SS119			
D310	8-719-911-19	DIODE 1SS119			
D311	8-719-911-19	DIODE 1SS119			
D313	8-719-911-19	DIODE 1SS119			
D314	8-719-911-19	DIODE 1SS119			
D401	8-719-911-19	DIODE 1SS119			
FL1	1-236-022-11	FILTER, BAND PASS			
HRP901	1-543-389-11	HEAD, MAGNETIC (REC/PB)			

Ref.No.	Part No.	Description			
IC1	8-752-035-68	IC CXA1238S			
IC301	8-759-978-54	IC BA3420AL			
IC302	8-759-972-19	IC BA5410			
IC401	8-759-905-47	IC BA338			
J301	1-566-891-11	JACK (PHONES)			
J302	1-507-954-11	JACK, EXTERNAL POWER (DC IN 9V)			
L1	1-422-317-31	COIL, VHF			
L2	1-459-815-11	COIL (WITH CORE)			
L3	1-402-431-11	ANTENNA, FERRITE-ROD (LW,MW)			
L5	1-406-253-11	COIL (OSC)			
L6	1-406-280-11	COIL (OSC)			
L7	1-406-252-11	COIL (OSC)			
L8	1-402-378-11	COIL (ANT)			
L10	1-402-431-11	ANTENNA, FERRITE-ROD (LW,MW)			
L11	1-410-316-11	INDUCTOR	1UH		
M301	1-541-625-11	MOTOR, DC			
MIC901	1-542-064-31	MICROPHONE, ELECTRET CONDENSER			
PM301	1-454-355-00	SOLENOID, PLUNGER			
Q2	8-729-922-66	TRANSISTOR 2SC2410S-N			
Q101	8-729-900-74	TRANSISTOR DTC143TS			
Q201	8-729-900-74	TRANSISTOR DTC143TS			
Q301	8-729-801-93	TRANSISTOR 2SD1387			
Q302	8-729-281-53	TRANSISTOR 2SC1815GR			
Q303	8-729-173-38	TRANSISTOR 2SA733-K			
Q304	8-729-281-53	TRANSISTOR 2SC1815GR			
Q305	8-729-195-23	TRANSISTOR 2SA952			
Q306	8-729-281-53	TRANSISTOR 2SC1815GR			
Q307	8-729-100-13	TRANSISTOR 2SC2001			
Q308	8-729-173-38	TRANSISTOR 2SA733-K			
Q309	8-729-281-53	TRANSISTOR 2SC1815GR			
Q310	8-729-900-61	TRANSISTOR DTA114ES			
R1	1-249-441-11	CARBON	100K	5%	1/4W
R2	1-249-421-11	CARBON	2.2K	5%	1/4W
R3	1-249-415-11	CARBON	680	5%	1/4W
R4	1-249-405-11	CARBON	100	5%	1/4W
R5	1-249-427-11	CARBON	6.8K	5%	1/4W
R6	1-249-427-11	CARBON	6.8K	5%	1/4W
R7	1-247-887-00	CARBON	220K	5%	1/4W
R8	1-249-421-11	CARBON	2.2K	5%	1/4W
R9	1-247-887-00	CARBON	220K	5%	1/4W
R10	1-249-429-11	CARBON	10K	5%	1/4W
R11	1-249-398-11	CARBON	27	5%	1/4W
R12	1-249-411-11	CARBON	330	5%	1/4W

Ref.No.	Part No.	Description			
R14	1-249-429-11	CARBON	10K	5%	1/4W
R15	1-249-429-11	CARBON	10K	5%	1/4W
R16	1-249-433-11	CARBON	22K	5%	1/4W
R18	1-249-417-11	CARBON	1K	5%	1/4W
R19	1-249-417-11	CARBON	1K	5%	1/4W
R20	1-249-441-11	CARBON	100K	5%	1/4W
R22	1-249-435-11	CARBON	33K	5%	1/4W
R101	1-247-895-00	CARBON	470K	5%	1/4W
R102	1-249-429-11	CARBON	10K	5%	1/4W
R103	1-249-419-11	CARBON	1.5K	5%	1/4W
R104	1-249-401-11	CARBON	47	5%	1/4W
R105	1-247-850-11	CARBON	6.2K	5%	1/4W
R106	1-249-409-11	CARBON	220	5%	1/4W
R107	1-249-437-11	CARBON	47K	5%	1/4W
R108	1-249-434-11	CARBON	27K	5%	1/4W
R109	1-249-428-11	CARBON	8.2K	5%	1/4W
R110	1-249-441-11	CARBON	100K	5%	1/4W
R111	1-249-429-11	CARBON	10K	5%	1/4W
R112	1-249-432-11	CARBON	18K	5%	1/4W
R113	1-249-406-11	CARBON	120	5%	1/4W
R114	1-249-405-11	CARBON	100	5%	1/4W
R201	1-247-895-00	CARBON	470K	5%	1/4W
R202	1-249-429-11	CARBON	10K	5%	1/4W
R203	1-249-419-11	CARBON	1.5K	5%	1/4W
R204	1-249-401-11	CARBON	47	5%	1/4W
R205	1-247-850-11	CARBON	6.2K	5%	1/4W
R206	1-249-409-11	CARBON	220	5%	1/4W
R207	1-249-437-11	CARBON	47K	5%	1/4W
R208	1-249-434-11	CARBON	27K	5%	1/4W
R209	1-249-428-11	CARBON	8.2K	5%	1/4W
R210	1-249-441-11	CARBON	100K	5%	1/4W
R211	1-249-429-11	CARBON	10K	5%	1/4W
R212	1-249-432-11	CARBON	18K	5%	1/4W
R213	1-249-406-11	CARBON	120	5%	1/4W
R214	1-249-405-11	CARBON	100	5%	1/4W
R301	1-249-417-11	CARBON	1K	5%	1/4W
R302	1-249-424-11	CARBON	3.9K	5%	1/4W
R303	1-249-421-11	CARBON	2.2K	5%	1/4W
R305	1-249-433-11	CARBON	22K	5%	1/4W
R306	1-249-407-11	CARBON	150	5%	1/4W
R307	1-249-432-11	CARBON	18K	5%	1/4W
R308	1-249-425-11	CARBON	4.7K	5%	1/4W
R309	1-249-417-11	CARBON	1K	5%	1/4W
R310	1-249-441-11	CARBON	100K	5%	1/4W
R311	1-249-405-11	CARBON	100	5%	1/4W
R313	1-249-421-11	CARBON	2.2K	5%	1/4W
R314	1-249-421-11	CARBON	2.2K	5%	1/4W
R315	1-247-810-11	CARBON	130	5%	1/4W
R316	1-249-437-11	CARBON	47K	5%	1/4W
R317	1-249-437-11	CARBON	47K	5%	1/4W
R319	1-249-393-11	CARBON	10	5%	1/4W
R322	1-249-417-11	CARBON	1K	5%	1/4W
R323	1-249-417-11	CARBON	1K	5%	1/4W
R324	1-247-893-11	CARBON	390K	5%	1/4W
R325	1-247-899-11	CARBON	680K	5%	1/4W

Ref.No.	Part No.	Description			
R326	1-249-405-11	CARBON	100	5%	1/4W
R327	1-249-441-11	CARBON	100K	5%	1/4W
R328	1-249-415-11	CARBON	680	5%	1/4W
R329	1-249-411-11	CARBON	330	5%	1/4W
R330	1-249-417-11	CARBON	1K	5%	1/4W
R331	1-249-423-11	CARBON	3.3K	5%	1/4W
R332	1-249-427-11	CARBON	6.8K	5%	1/4W
R401	1-247-889-00	CARBON	270K	5%	1/4W
R402	1-247-891-00	CARBON	330K	5%	1/4W
R403	1-249-429-11	CARBON	10K	5%	1/4W
R404	1-249-441-11	CARBON	100K	5%	1/4W
R405	1-249-413-11	CARBON	470	5%	1/4W
R406	1-249-422-11	CARBON	2.7K	5%	1/4W
RV1	1-228-995-00	RES, ADJ, CARBON 22K			
S1	1-571-896-11	SWITCH, LEVER SLIDE (BAND SELECT)			
S301	1-571-950-11	SWITCH, SLIDE (REC/PB)			
S302	1-570-347-31	SWITCH, LEVER SLIDE (FUNCTION)			
S303	1-571-474-11	SWITCH, PUSH (DIR MODE)			
S304	1-571-043-11	SWITCH, PUSH (1 KEY)(REC MUTE)			
S305	1-571-307-11	SWITCH, SLIDE (MONO/ST)			
S306	1-570-012-11	SWITCH, LEAF (PLAY)			
S307	1-570-012-11	SWITCH, LEAF (FF/REW)			
S308	1-570-012-11	SWITCH, LEAF (REV)			
S309	1-571-904-11	SWITCH, SLIDE (HEAD REV-FWD)			
SP1	1-503-823-11	SPEAKER			
SP2	1-503-823-11	SPEAKER			
T1	1-404-158-11	COIL, IFT			
T301	1-433-268-00	TRANSFORMER, BIAS OSCILLATOR			
VR1	1-238-629-11	RES, VAR, CARBON 100K (FINE TUNING)			
VR301	1-230-454-11	RES, VAR, CARBON 20K/20K (VOLUME)			
VR302	1-237-567-11	RES, VAR, CARBON 20K/20K (TONE)			

ACCESSORY & PACKING MATERIAL

⚠	1-463-700-21	(UK)....ADAPTOR, AC (AC-930A)
⚠	1-463-705-21	(AEP)...ADAPTOR, AC (AC-930AEP)
	3-340-754-01	SHEET, PROTECTION
*	3-352-253-01	CUSHION (LEFT) (RIGHT)
*	3-352-263-01	(AEP)...INDIVIDUAL CARTON
*	3-352-264-01	(UK)....INDIVIDUAL CARTON
	3-701-626-00	BAG, POLYETHYLENE
	3-750-186-11	MANUAL, INSTRUCTION
	3-750-186-41	(AEP)...MANUAL, INSTRUCTION

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

9-953-789-11

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Audio Group

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